



**A Vision for the Army**  
**through**  
**Modeling and Simulation**

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Corps***

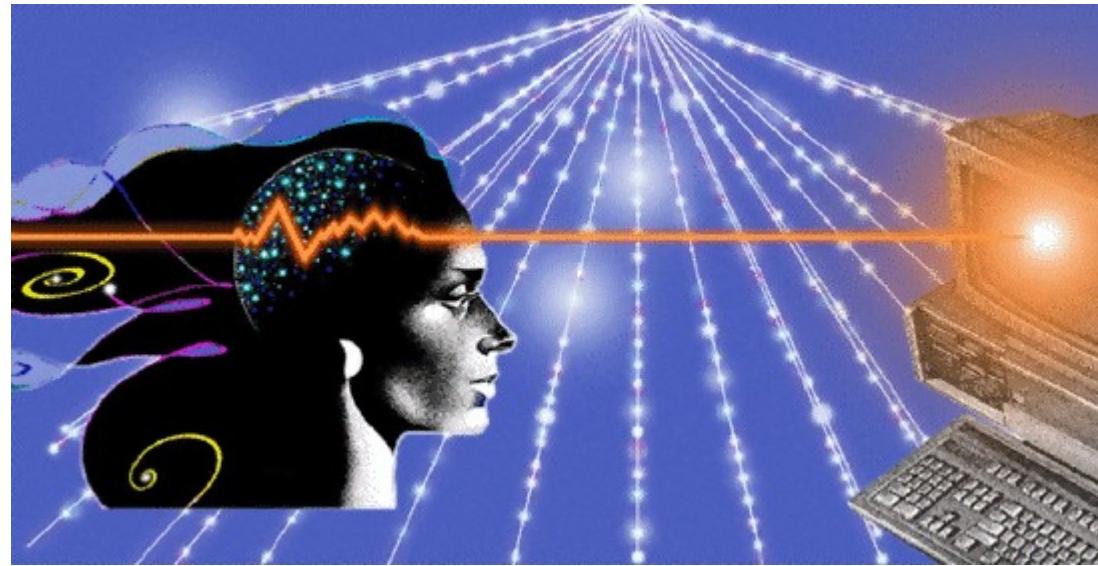
**May 19, 1999**

***"Soldiers Are Our Customers"***





# Army is Moving into the Digital Age



**Ideas, concepts and information will be represented and exchanged via electronic**



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# Acquisition Process

**To achieve the productivity promised by digital information, the Acquisition Process must adopt digital technology:**

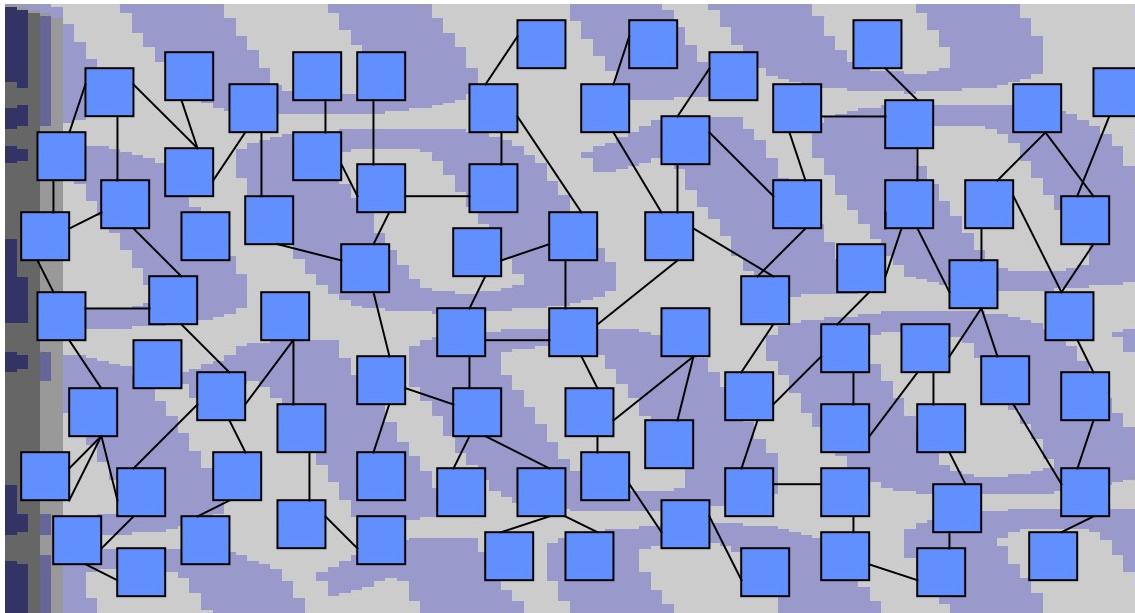
- Internet
- E-mail
- E-commerce
- Virtual reality





# Acquisition in Bits

**Medium of digital information exchange in acquisition will be in Models and Simulations (M&S)...**



- Human Brain can integrate no more than 7-9 unrelated concepts
- Illustration of 81 items interacting w/ each other...  
6,480 possible interactions to

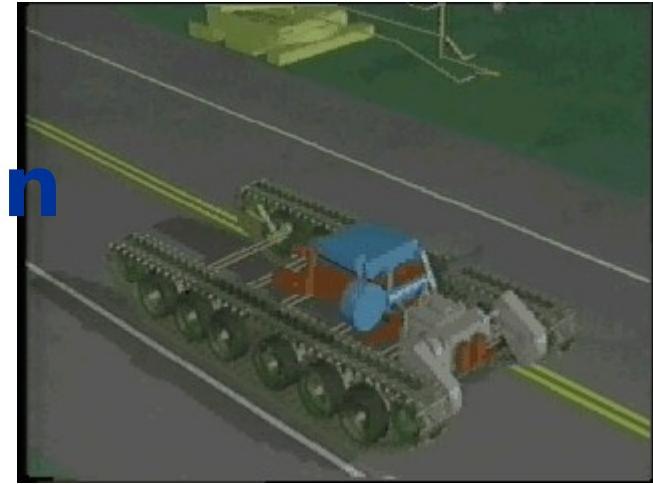
M&S provide the tools for evaluating **complex** systems with numerous sub-components and interactions





# If a Picture is Worth a Thousand Words ... ,

## ... what is a Simulation worth?



Created with BRL-CAD (tm)

Simulations address:

- detail complexity - multiple components
- dynamic complexity - cause and effect with regard to time and space

But do not provide answers, only understanding  
They are a decision aid!





# Simulation and Modeling for Acquisition, Requirements and Training (SMART)



The Army's vision for SMART is a process in which we capitalize on Modeling and Simulation (M&S) technology to address the issue of system development and life-cycle costs through the combined efforts of the requirements, training and



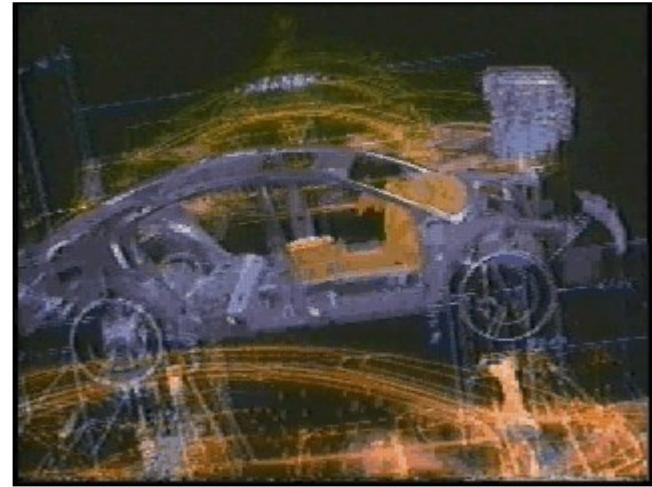
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# SMART Enables the Digital Acquisition Corps

- SMART Enables the Acquisition Workforce to Depict System Design Alternatives Digitally and Provide Access to all System Stakeholders
- Distributed Access to Developing Digital Design Allows Assessment of Proposed Changes for Impacts to all Acquisition Functions
- System Design Evolves With Optimization Across all Functions Vice at the Expense of one Another



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# What Will SMART Achieve?

- **Reduced Total Ownership Cost (TOC), Time to Initial Operating Capability (IOC), and Logistics Tail**
- **Increased Supportability, Maintainability, and Military Worth**
- **More Effective, Cost Efficient Training at Individual, Crew, and System Level**

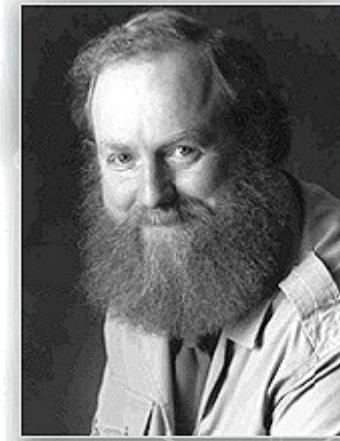


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# What's the “Big Idea”?



**“There are 2 types of people;  
Requirements people and “Big Idea”  
people. Requirements people like to  
deal in deliberate detail, while “Big  
Idea” people start with a general  
vision and create from there...the  
Army’s “Own the Night” initiative is  
a Big Idea”**

Bran Ferren,  
President  
Research  
and  
Developmen  
t and  
Creative  
Technology  
*Walt Disney*  
Imagineerin  
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# Leveraging the “Big Idea”



- **Build a little, test a little**
- **Strike a balance between specifics and creative ingenuity**

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# Applying SMART

## Effective application of SMART and a “Big I” requires adaptive processes:

- RFPs as simulations
- Proposals as models/objects exercised in an authoritative simulation



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# A SMART Point to Ponder



## Acquisition Reform...A Note on Standards:

**"In fact standards free companies to innovate much more rapidly, and profitably than do proprietary approaches. When standards define architectures, interfaces, and basic communications, companies can innovate 'on top of the standard'. We can focus on high-value capabilities without having to rewrite the architecture or interface"**

*Lew Platt, Chairman, CEO & President, Hewlett-Packard*

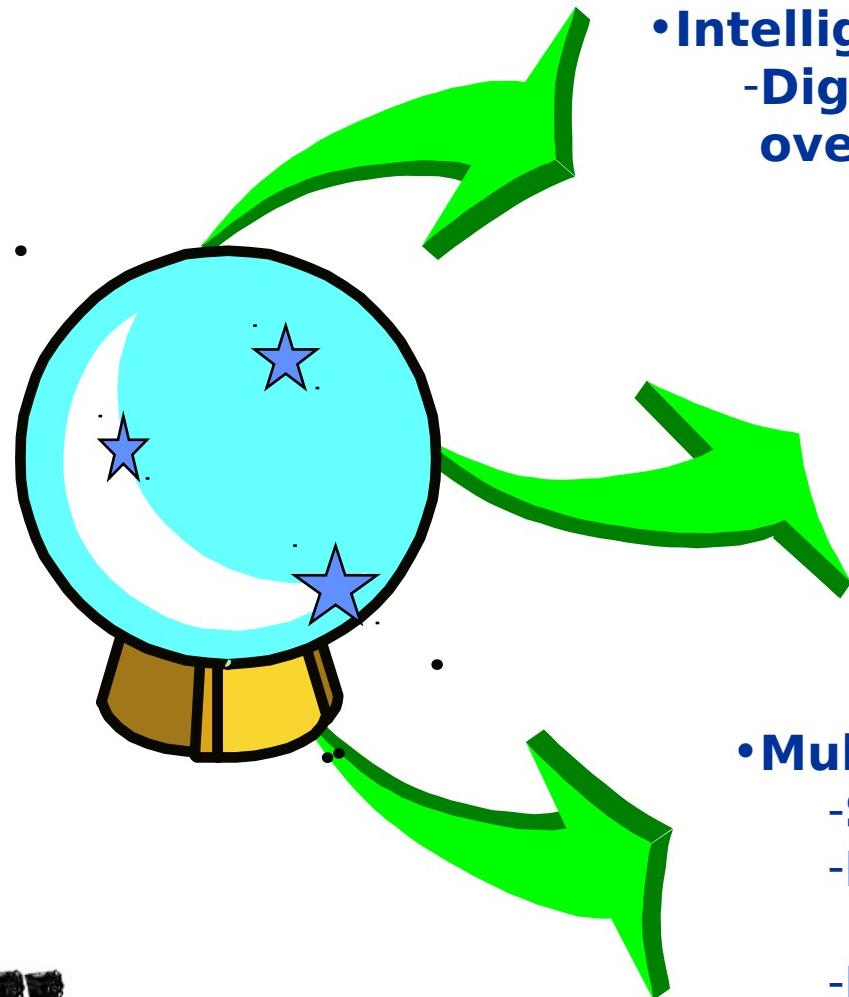
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# Effective Application of SMART & “Big Ideas”

... requires technology developments:



- Intelligent Interface Agents for Program Management
  - Digital Product descriptions may lead to information overload ... how to manage?
- Neural Networks/Fuzzy Logic Applications
  - Concept Evaluation
  - Total Ownership Costs
  - Doctrine
- Voice Recognition Technology
  - Generate simulation scenarios from voice recognition input
- Multi-Agent Behavior & Causal Network Theory
  - System of Systems Analysis
  - Linkage of performance requirements between system components
  - Doctrine





# SMART 2000 Conference

**Late January 2000; location: TBD**

**- 2 1/2 days(Tuesday PM - Friday PM)**

**- Same venue (Senior Leadership, CEO, PEO,  
RDEC/BL      panels,      breakouts)**

**Target greater TRADOC, DCSOPS, Log, Intel, and Cost  
Community participation**

**Breakout sessions will focus on the Army's four Flagship  
programs: Close Combat Tactical Trainer, Apache,  
Crusader and Future Scout and Cavalry System**

**Show how these programs are applying M&S to  
the functions performed by the requirements  
generation , acquisition and training communities**

**Show how your future will look when using M&S**





# What Do We Need to Do?

**The Army and Industry must work together to develop an integrated SMART environment whereby we can provide systems to the warfighters better, faster and cheaper.**

- Neural Networks
- Fuzzy Logic Applications
- Voice Recognition
- Multi-Agent Behavior
- Causal Networks





*Facing the  
Future...*

*Together*